

REMARKS UNDER 37 CFR § 1.111

Formal Matters

Claims 1-12 are pending after entry of the amendments set forth herein.

Claims 1-5 were examined. Claims 1,2,4 and 5 were rejected. Claim 3 was allowed.

Applicants respectfully request reconsideration of the application in view of the amendments and remarks made herein.

No new matter has been added.

The Office Action

In the Official Action of March 10, 2005, claims 1,2,4 and 5 were rejected under 35 U.S.C. Section 102(e) as being anticipated by Zuzan et al. (U.S. Patent Publication No. US 2003/0087289 A1). With regard to claim 1, the Examiner asserted that Zuzan et al. discloses computing row and column vectors by horizontal and vertical projection of pixel intensity values. The Examiner referred to Figures 3A-3D as support for this assertion. However, Figs. 3A-3D illustrate a background estimate and background subtraction procedure and do not disclose or suggest computing row and column vectors by horizontal and vertical projection of pixel intensity values. Fig. 3A illustrates a 100x100 pixel region exhibiting an image artifact. Fig. 3B illustrates the artifact and pixels of Fig. 3A using ray tracing and pseudo coloring. Fig. 3C shows the background estimate of the pixels of Figs. 3A and 3B. Fig. 3D illustrates the probe cell intensities after the background estimates are subtracted. There is no disclosure or suggestion of computing row and column vectors as currently recited in claim 1.

The Examiner further asserted that Zuzan et al. discloses computing corner-feature-image positions from the horizontal and vertical pixel-value projections. The Examiner referred to paragraph [0121] as support for this assertion. Applicants respectfully traverse the assertion. First, as noted above, Zuzan et al. does not disclose or suggest the computation of row and column vectors as claimed. Second, paragraph [0121] specifically states that the corners of the array of probe cells in the example were located by visual inspection. That is, the corners were located by dead reckoning, by human intervention, which is contrary to the Examiner's interpretation.

For at least the same reasons, Zuzan et al. does not disclose or suggest construction a feature coordinate system based on computed corner-feature-image positions or using such a coordinate system to index and extract data from feature images.

With regard to claim 2, the Examiner asserted that Zuzan et al. discloses indexing images of features within the scanned image of an array by constructing an initial feature coordinate system. The Examiner referred to paragraph [0074] as support for this assertion. Claim 2 has been amended above to further define construction of an initial feature coordinate system as including computing corner-feature image positions and estimating positions of said features other than the corner features based on the computed corner-feature positions and known inter-feature spacings. It is respectfully submitted that Zuzan et al. clearly fails to disclose or suggest construction of an initial feature coordinate system as currently recited in claim 2.

With regard to claim 4, the Examiner asserted that Zuzan et al. disclose indexing features within the scanned image of the array by constructing and refining a feature coordinate system and, for each indexed feature image, selecting a set of pixels within the feature image from which to compute one or more feature intensity signals. The Examiner referred to paragraph [0074] and Figures 3A-3D as support for these assertions. However, Zuzan et al. describes forming a log transform of pixel intensities of a feature and averaging the total contribution of the pixels over the area of the probe cell to arrive at the intensity of the probe cell. Thus, Zuzan et al. does not select a set of pixels within the feature image from which to compute feature intensity signals. Rather, Zuzan et al. considers all pixels and calculates an average intensity.

The same arguments apply to claim 5. Further, Zuzan et al. does not disclose or suggest extracting two or more background-subtracted and normalized feature signal intensities from the selected set of pixels for each feature image. First, Zuzan et al. does not select a set of pixels with a feature image from which to compute feature intensity, as already noted. Second, the Examiner has referred to Figures 3A-3D of Zuzan et al. as support for the assertion that Zuzan et al. discloses extracting two or more background-subtracted and normalized feature signal intensities from the selected set of pixels. As noted above, Figs. 3A-3D illustrate only a background estimate and background subtraction procedure. There is no disclosure of normalizing the signals in the description of Figures 3A-3D.

In view of the above amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1,2,4 and 5 under 35 U.S.C. Section 102(e) as being anticipated by Zuzan et al. (U.S. Patent Publication No. US 2003/0087289 A1), as being inappropriate.

New claims 6-11 each depend ultimately from one of existing claims 1, 2 and 4. Thus it is respectfully submitted that claims 6-11 are allowable over Zuzan et al. for at least the reasons provided above with regard to claims 1, 2 and 4, respectively. Further, claim 6 recites that said computing

corner-feature-image positions comprises estimating an x-coordinate of left-hand-corner-feature-images from a position of a first peak in the column vector and estimating an x-coordinate of right-hand-corner-feature-images from a position of a last peak in the column vector, which is clearly neither disclosed nor suggested by Zuzan et al.

Claim 7 depends from claim 1 and further recites that said computing corner-feature-image positions comprises estimating a y-coordinate of upper corner-feature-images from a position of a first peak in the row vector and estimating a y-coordinate of lower corner-feature-images from a position of a last peak in the row vector, which is also clearly not disclosed or suggested by Zuzan et al.

Claim 8 depends from claim 2, and further recites that said corner-feature-image positions are calculated based on horizontal and vertical pixel-value projections of said features. As already noted, the corner features of Zuzan et al. are visually located, not calculated.

Claim 9 depends from claim 4, and further recites that said refining a feature coordinate system comprises blob analysis, which is clearly neither disclosed or suggested by Zuzan et al. Further, claim 10 depends from claim 9, and adds that said blob analysis comprises calculation of centroids of blobs representing said features, and modifying locations of said features in said feature coordinate system base on said centroids of said blobs.

Claim 11 depends from claim 4, and further recites that said set of pixels comprises a subset of all features contained with the feature image, wherein a total number of features contained in said subset is less than a total number of features contained within the feature image. As noted, Zuzan et al. averages over all pixels. Claim 12 depends from claim 3 and further specifies that rotation of the feature co-ordinate system includes the application of rotation matrices.

Applicants wish to extend their thanks to the Examiner for the allowance of claim 3.

Conclusion

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078, order number 10020406-1.

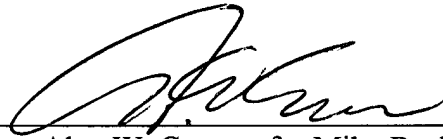
Respectfully submitted,

Yakhini et al.

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By:



Alan W. Cannon for Mike Beck
Registration No. 34,977

Mike Beck
Agilent Technologies, Inc.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599
Telephone: (650) 485-3864
Facsimile: (650) 485-5487